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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Kazuhisa Fujimoto

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CLEVELAND, OH 44114-3108

EXAMINER

DSOUZA, JOSEPH FRANCIS A

ART UNIT

PAPER NUMBER

2611

NOTIFICATION DATE

DELIVERY MODE

11/26/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/542,953	Applicant(s) FUJIMOTO, KAZUHISA	
	Examiner ADOLF DSOUZA	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 August 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Arguments

1. The correction to the specification has been accepted by the Examiner.
2. Applicant's arguments filed 8/5/2008 have been fully considered but they are not persuasive.

a) Argument: Applicant argued that “JP '678 appears to modulate sub-carriers arranged only along the frequency axis, such as shown in Figure 2, for example” (Remarks 8/5/2008, page 5, 2nd paragraph in "Claim rejection" section; page 6, 2nd and 3rd full paragraphs)

Response: Examiner respectfully disagrees. As stated in Applicant's specification (page 2, lines 13 – 15), modulation along the time axis is done by the parallel-to-serial converter 505 after the IFFT in the transmitter. JP '678 discloses a parallel-to-serial converter after the IFFT in the transmitter performing the same function (see [0036], 1st few lines where element 506 performs the parallel-to-serial conversion. Also see Drawing 5, element 506).

b) Argument: Applicant argued that “JP '095, cited as disclosing such a feature, discloses a mapping circuit 222 as the determining portion, but the portion of JP '095 discussing the mapping circuit 222 cited as the determining unit is a description the OFDM receiver 23. (Remarks 8/5/2008, page 6, 1st full paragraph).

Response: Examiner respectfully disagrees. JP '095 clearly states that element 222 is in the transmitter (see [0038], last 2 lines; see Drawing 1, where element 222 is before the IFFT, which is in the transmitter side in an OFDM system).

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In view of the above arguments, Examiner is maintaining his rejection as in the last Office Action (modified for the changes in the claim language).

Priority

3. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1- 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2001-148678 in view of JP 1999-215095 (both of which have been provided by the Applicant in his IDS).

Regarding claim 1, JP 2001-148678 discloses a multi-carrier communication apparatus for transmitting data using a plurality of sub-carriers ([0001]), comprising:

a modulator that modulates a plurality of sub-carriers arranged in a two-dimensional matrix in a complex plane according to first data, the matrix including a plurality of sub-

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carriers arranged in a direction of a frequency axis and a plurality of sub-carriers in a direction of a time axis (Fig. 2, element 201; [0020] – [0021]; claim 1 & 5, [0017]; Fig. 5 element 506; wherein the allocation of sub-carriers is interpreted as being done by element 201. Also see Response to Arguments paragraph 2(a) above);

an allocating unit which allocates the determined pattern of particular signals to sub-carriers of the matrix other than the subcarriers modulated according to the first data (Fig. 2, element 203; [0020] – [0021]; wherein the second data is interpreted as the 20 bit data);

and a transmitting unit which transmits the particular signals allocated to the matrix and the sub-carriers modulated by the first data (Figs.1 & 2).

JP 2001-148678 does not disclose determining a pattern on the transmitter side.

In the same field of endeavor, however, JP 1999-215095 discloses a determining unit which determines a pattern of particular signals associated with second data (Fig. 1, element 222; [0035] - [0036]).

Therefore it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to use the method, as taught by JP 1999-215095, in the system of JP 2001-148678 because this would allow the sub-carrier allocation to be done according to the pattern, as disclosed by JP 1999-215095.

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Regarding claim 2, JP 2001-148678 discloses a multi-carrier communication apparatus, comprising:

a detecting unit which detects a pattern of particular signals associated with first data which are allocated to sub-carriers of a two-dimensional matrix formed by arranging a plurality of sub-carriers in a direction of a frequency axis and a plurality of sub-carriers arranged in a direction of a time axis obtained from received data in a direction of a time axis (Fig. 3, element 302; [0023]);

a restoring unit which restores the first data associated with the detected pattern (Fig. 3, element 303; [0023], [0030]);

and a demodulating unit which demodulates second data from sub-carriers which are modulated by the second data allocated to a part of the matrix other than the particular signals (Fig. 3, element 305; [0023], [0030]).

Regarding claim 3, JP 2001-148678 discloses each of the plurality of sub-carriers arranged in the direction of the frequency axis has an orthogonal relationship with a sub-carrier adjacent thereto (Fig. 7; [0002]; [0043]; wherein the orthogonal relationship between sub-carriers is well known in an OFDM system).

Regarding claim 4, JP 2001-148678 discloses at least one of a number of sub-carriers arranged in the direction of the frequency axis and a number of sub-carriers arranged in the direction of the time axis is variable ([0021], which indicates a sub-set of the sub-carriers are used , which means the number of sub-carriers is variable. Though JP

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2001-148678 discloses 10 are used in this example, one of ordinary skill in the art can easily use a different number.

Further JP 1999-215095 also discloses the above limitation (see Claim 5; since carriers may not be used by creating carrier holes, it creates a variables number of carriers).

Other Prior Art Cited

6. The prior art made of record and not relied upon is considered pertinent to the applicant's disclosure.

The following patents are cited to further show the state of the art with respect to OFDM systems:

Moose (US 5,063,574) discloses a multi-frequency differentially encoded digital communication for high data rate transmission through unequalized channels.

Dapper et al. (US 6,128,334) discloses a receiver addressable AM compatible digital broadcast system.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ADOLF DSOUZA whose telephone number is (571)272-1043. The examiner can normally be reached on Monday through Friday from 8:00 AM to 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Payne can be reached on 571-272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Adolf DSouza
Examiner
Art Unit 2611

AD

/David C. Payne/

Supervisory Patent Examiner, Art Unit 2611